

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-60. (Canceled)

61. (Currently Amended) A device for measuring a three-dimensional geometry of an object, comprising:

a support base;

a turntable coupled to the support base and configured to rotate about an axis substantially perpendicular to a surface of the turntable, the turntable configured to support an object, the turntable and the object configured to rotate about the axis one of during making a measurement of the three-dimensional geometry of the object and between making measurements from a plurality of measurements of a the three-dimensional geometry of the object; and

a sensor coupled to the support base, the sensor configured to measure an angular rotation of the turntable, the sensor configured to send sensor data associated with the angular rotation to a processor, the processor configured to determine the three-dimensional geometry of the object based on the measurement and the angular rotation.

62. (Previously Presented) The device of claim 61, wherein the turntable further includes interface electronics configured to provide the sensor data associated with the angular rotation to the processor.

63. (Previously Presented) The device of claim 61, further comprising a probe, the probe being configured to physically trace a surface of the object to detect three-dimensional coordinates associated with the three-dimensional geometry of the object.

64. (Currently Amended) The device of claim 63, wherein the turntable ~~defines~~ includes a receptacle disposed adjacent a periphery of the turntable, the receptacle being configured to receive the probe in an initialization procedure associated with calibrating a position of the turntable relative to the probe.

65. (Currently Amended) The device of claim 63, wherein the turntable ~~defines~~ includes a receptacle disposed adjacent a center of the turntable, the receptacle being configured to receive the probe in an initialization procedure associated with calibrating a position of the turntable relative to the probe.

66. (Previously Presented) The device of claim 63, wherein the support base is coupled to a base of the probe such that a position and an orientation of the turntable is fixed relative to the probe.

67. (Previously Presented) The device of claim 63, wherein the probe is a stylus including a tip configured to contact the object.

68. (Previously Presented) The device of claim 64, wherein the receptacle is configured to receive the probe such that when the turntable is rotated during the initialization procedure, the probe is configured to rotate with the turntable, a plurality of positions and orientations of the probe being sampled during the rotation to calibrate the turntable with respect to the probe.

69. (Currently amended) A device for measuring a three-dimensional geometry of an object, comprising:

a support base;

a turntable coupled to the support base and configured to rotate about an axis substantially perpendicular to a surface of the turntable, the turntable configured to support an object, the turntable and the object configured to rotate about the axis one of during making a measurement of the three-dimensional geometry of the object and between making measurements from a plurality of measurements of the three-dimensional geometry of the object;

a sensor coupled to the support base, the sensor configured to measure an angular rotation of the turntable, the sensor configured to send sensor data associated with the angular rotation to a processor, the processor configured to determine the three-dimensional geometry of the object based on the measurement and the angular rotation;

a probe, the probe being configured to physically trace a surface of the object to detect three-dimensional coordinates associated with the three-dimensional geometry of the object,

~~The device of claim 63~~, wherein the turntable includes a first receptacle disposed adjacent a periphery of the turntable and a second receptacle disposed adjacent a center of the turntable, each of the receptacles being configured to receive the probe in an initialization procedure associated with calibrating a position of the turntable relative to the probe.

70. (Previously Presented) The device of claim 63, wherein the turntable is configured to be manually rotated.

71. (Currently Amended) The device of claim 61, wherein the processor is configured to output data values associated with a three-dimensional model of the object from sensor data associated with the three-dimensional geometry of the object.

72. (Currently Amended) A system for measuring a three-dimensional geometry of an object, comprising:

(a) an apparatus including at least one sensor configured to detect information associated with a the three-dimensional geometry of ~~an~~ the object and configured to provide the information to a processor; and

(b) a rotary table including:

(i) a base;

(ii) a turntable coupled to the base and being configured to rotate about an axis perpendicular to a surface of the turntable, the turntable configured ~~receiving to~~ receive on said surface the object, the turntable and the object being configured to rotate

about the axis one of during detecting information and between subsequent detections of the information associated with three-dimensional geometry of the object; and

(iii) a turntable sensor coupled to the base, the turntable sensor configured to measure a rotation of the turntable about the axis, said turntable sensor being configured to output turntable data associated with the rotation to the processor, ~~the~~ a determination of the three-dimensional geometry being based on the turntable data.

73. (Previously Presented) The system of claim 72, wherein the turntable data is operative to locate the object on the rotary table with respect to the apparatus after the turntable is rotated.

74. (Currently amended) A system for measuring a three-dimensional geometry of an object, comprising:

(a) an apparatus including at least one sensor configured to detect information associated with the three-dimensional geometry of the object and configured to provide the information to a processor; and

(b) a rotary table including:

(i) a base;

(ii) a turntable coupled to the base and being configured to rotate about an axis perpendicular to a surface of the turntable, the turntable configured to receive on said surface the object, the turntable and the object being configured to rotate about the axis one of during detecting information and between subsequent detections of the information associated with three-dimensional geometry of the object; and

(iii) a turntable sensor coupled to the base, the turntable sensor configured to measure a rotation of the turntable about the axis, said turntable sensor being configured to output turntable data associated with the rotation to the processor, a determination of the three-dimensional geometry being based on the turntable data, wherein the turntable data is operative to locate the object on the rotary table with respect to the apparatus after the turntable is rotated,

~~The system of claim 73,~~ wherein the apparatus is a probe including an interface microprocessor separate from the processor and coupled to the probe, the turntable sensor, and the processor, the interface microprocessor being configured to receive the information and the turntable data and to send the information and the turntable data to the processor.

75. (Currently Amended) The system of claim 73, wherein the apparatus is a probe configured to trace a surface of the object to generate probe data, the at least one sensor configured to generate data associated with the three-dimensional geometry of the object based on the probe data.

76. (Previously Presented) The system of claim 75, wherein the probe is a stylus having a tip configured to contact the object.

77. (Currently Amended) A system for measuring a three-dimensional geometry of an object, comprising:

(a) an apparatus including at least one sensor configured to detect information associated with the three-dimensional geometry of the object and configured to provide the information to a processor; and

(b) a rotary table including:

(i) a base;

(ii) a turntable coupled to the base and being configured to rotate about an axis perpendicular to a surface of the turntable, the turntable configured to receive on said surface the object, the turntable and the object being configured to rotate about the axis one of during detecting information and between subsequent detections of the information associated with three-dimensional geometry of the object; and

(iii) a turntable sensor coupled to the base, the turntable sensor configured to measure a rotation of the turntable about the axis, said turntable sensor being configured to output turntable data associated with the rotation to the processor, a determination of the three-dimensional geometry being based on the turntable data,

wherein the turntable data is operative to locate the object on the rotary table with respect to the apparatus after the turntable is rotated,

wherein the apparatus is a probe configured to trace a surface of the object to generate probe data, the at least one sensor configured to generate data associated with the three-dimensional geometry of the object based on the probe data,

The system of claim 75, wherein the probe includes:

a first joint member;

a first linkage rotatably coupled to the first joint member;

a second joint member rigidly coupled to the first linkage;

a second linkage rigidly coupled to the second joint member; and
a third joint member rigidly coupled to the second linkage and to a probe base.

78. (Previously Presented) The system of claim 75, wherein the turntable includes a receptacle disposed adjacent a periphery of the turntable, the receptacle being configured to receive the probe in an initialization procedure associated with calibrating a position of the turntable relative to the probe.